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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HENNING, MATTHEW T

ART UNIT	PAPER NUMBER
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2131

DATE MAILED: 01/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/082,511	Applicant(s) CHENG ET AL.	
	Examiner Matthew T. Henning	Art Unit 2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 20-23 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 20-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1 This action is in response to the communication filed 10/28/2005.

2 **DETAILED ACTION**

3 ***Response to Arguments***

4 Applicant's arguments with respect to claims 1-17 and 20-23 have been considered but
5 are moot in view of the new ground(s) of rejection.

6 Claims 1-17, and 20-23 have been examined and claims 18-19 have been cancelled.

7 All objections and rejections not presented below have been withdrawn.

8 ***Information Disclosure Statement***

9 The listing of references in the specification is not a proper information disclosure
10 statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information
11 submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be
12 incorporated into the specification but must be submitted in a separate paper." Therefore, unless
13 the references have been cited by the examiner on form PTO-892, they have not been
14 considered. This pertains mainly to the "Audio Watermarking of MPEG-2 AAC Bit Streams"
15 reference of page 1.

16 ***Claim Rejections - 35 USC § 103***

17 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
18 obviousness rejections set forth in this Office action:

19 *A patent may not be obtained though the invention is not identically disclosed or*
20 *described as set forth in section 102 of this title, if the differences between the subject matter*
21 *sought to be patented and the prior art are such that the subject matter as a whole would have*
22 *been obvious at the time the invention was made to a person having ordinary skill in the art to*
23 *which said subject matter pertains. Patentability shall not be negatived by the manner in which*
24 *the invention was made.*
25

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1 Claims 1-4, and 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over
2 Neubauer et al. (“Audio Watermarking of MPEG-2 AAC Bit Streams”) hereinafter referred to as
3 Neubauer, and further in view of Cox et al. (“Secure Spread Spectrum Watermarking for
4 Multimedia”) hereinafter referred to as Cox, and further in view of Birks et al. (US Patent
5 Number 6,373,530) hereinafter referred to as Birks.

6 Regarding claims 1, 8, and 10, Neubauer disclosed an encoding apparatus for embedding
7 data in a compressed data stream (See Neubauer Fig. 7), the apparatus comprising: a decoder
8 receptive of the compressed data stream and operable to decode the compressed data stream,
9 thereby obtaining a decoded data stream (See Neubauer Fig. 8 and Page 5 Section 4.1 Especially
10 “Parts of Decoder”); a data embedder in communication with said decoder and receptive of the
11 data and the decoded data stream, said data embedder operable to embed the data into the data
12 stream using a spread spectrum technique, thereby obtaining a data-embedded decoded data
13 stream (See Neubauer Fig. 8 and Section 4.1 Especially “Watermark Generator” and “Weighting
14 and Adding”); and an encoder in communication with said data embedder, said encoder operable
15 to encode the data-embedded decoded data stream, thereby obtaining a data-embedded
16 compressed data stream (See Neubauer Fig. 8 and Section 4.1 Especially “Parts of Encoder”),
17 however, Neubauer failed to disclose partially decoding the stream and spread spectrum
18 embedding in the quantized indices.

19 Cox teaches a method for embedding data into quantized indices of multimedia (See Cox
20 Pages 1676-1678 Section III).

1 Birks teaches that by in a system that watermarks encoded data, it is advantageous to
2 watermark the quantization indices as there is no need for inverse or forward transformation and
3 therefore less processing.

4 It would have been obvious to the ordinary person skilled in the art at the time of
5 invention to employ the teachings of Cox and Birks in the audio watermarking system of
6 Neubauer by only decoding the data partially and embedding the watermark data in the
7 quantization indices. This would have been obvious because the ordinary person skilled in the
8 art at the time of invention would have been motivated to reduce the amount of processing
9 required to embed and read the watermark.

10 Regarding claims 2 and 11, the combination of Neubauer, Cox, and Birks disclosed an
11 index selector in communication with said partial decoder, said index selector operable to select
12 a plurality of the quantization indices, thereby obtaining selected indices, and to determine
13 respective amounts by which to modify the selected indices, wherein said data embedder is
14 operable to embed the data into the quantization indices by modifying the selected indices
15 according to the respective amounts, thereby obtaining a data-embedded partially decoded data
16 stream (See Cox Page 1677 Col. 2 Paragraph 2, and Neubauer Section 4.1, "Watermark
17 Generator" and "Weighting and Adding").

18 Regarding claims 3, 12, and 13, the combination of Neubauer, Cox, and Birks disclosed
19 that the index selector is operable to: choose indices corresponding to ranges within a sensitive
20 portion of a human sensory range; discard zero indices; and always determine a minimum
21 amount (See Cox Page 1677 Col. 2 Paragraph 2 and Section IV B ("Inserting and Extracting the
22 Watermark").

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1 Regarding claims 4, 9, and 14, the combination of Neubauer, Cox, and Birks disclosed
2 that the data embedder is receptive of an encoding key and operable to embed the data based on
3 the encoding key (See Neubauer Page 2 Section "Robustness").

4 Claims 5-6 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the
5 combination of Neubauer, Cox, and Birks as applied to claims 1 and 10 above, and further in
6 view of Sprague (US Patent Number 4,617,645).

7 Neubauer, Cox, and Birks disclosed partially decoding an audio data stream and then
8 watermarking the stream (See the rejection of claim 1 above), but failed to disclose reducing the
9 variance of the stream.

10 Sprague teaches a method for compressing audio data involving sorting the data in
11 descending order (See Sprague Claim 6), and then constructing a new set of data by taking the
12 difference between pairs of consecutive samples resulting in an alternating signed data (See
13 Sprague Col. 3 Lines 7-19).

14 It would have been obvious to the ordinary person skilled in the art at the time of
15 invention to employ the teachings of Sprague in the audio watermarking system of Neubauer,
16 Cox, and Birks by utilizing the compression system of Sprague for compressing the quantization
17 indices. This would have been obvious because the ordinary person skilled in the art at the time
18 of invention would have been motivated to considerably compact the quantization indices.
19 Further, in this combination, the variance would be reduced as a result of taking the difference of
20 pairs of consecutive samples.

Neubauer, Cox, and Birks disclosed an audio stream watermarking system (See the rejection of claim 1 above) in which “side information” was transmitted between the decoder and the encoder (See Neubauer Fig. 8 and Page 4 Paragraph 2) however, Neubauer, Cox, and Birks failed to disclose the specifics of the “side information”.

8 Smyth teaches that in an audio Huffman coding system, “side information” includes bit
9 allocations, scale factors, PMODES, TMODES, and codebook (See Smyth Col. 36 Lines 45-50).

10 It would have been obvious to the ordinary person skilled in the art at the time of
11 invention to employ the teachings of Smyth in the watermarking system of Neubauer, Cox, and
12 Birks by including the necessary information for coding and decoding in the side information
13 including the codebook. This would have been obvious because the ordinary persons skilled in
14 the art at the time of invention would have been motivated to provide the side information that
15 was common in the art.

16 *Conclusion*

17 Claims 1-17, and 20-23 have been rejected.

Applicant's amendment necessitated the new ground(s) of rejection presented in this
Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).
Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

21 A shortened statutory period for reply to this final action is set to expire THREE
22 MONTHS from the mailing date of this action. In the event a first reply is filed within TWO


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1 MONTHS of the mailing date of this final action and the advisory action is not mailed until after
2 the end of the THREE-MONTH shortened statutory period, then the shortened statutory period
3 will expire on the date the advisory action is mailed, and any extension fee pursuant to 37
4 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,
5 however, will the statutory period for reply expire later than SIX MONTHS from the date of this
6 final action.

7 Any inquiry concerning this communication or earlier communications from the
8 examiner should be directed to Matthew T. Henning whose telephone number is (571) 272-3790.
9 The examiner can normally be reached on M-F 8-4.

10 If attempts to reach the examiner by telephone are unsuccessful, the examiner's
11 supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the
12 organization where this application or proceeding is assigned is 571-273-8300.

13 Information regarding the status of an application may be obtained from the Patent
14 Application Information Retrieval (PAIR) system. Status information for published applications
15 may be obtained from either Private PAIR or Public PAIR. Status information for unpublished
16 applications is available through Private PAIR only. For more information about the PAIR
17 system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR
18 system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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22 
23 Matthew Henning
24 Assistant Examiner
25 Art Unit 2131
1/22/2006


1/23/06
Primary Examiner
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